

AMENDMENTS TO THE CLAIMS

Please cancel claims 12 and 25; amend claims 1, 8, 16-19, 22-24, 26, and 27; and add new claim 41, such that the status of the claims is as follows:

1. (Currently Amended) A magnetic storage medium comprising:
 - a substrate having a substrate surface;
 - a seedlayer structure overlying the substrate surface; [[and]]
 - a magnetic material layer on the seedlayer structure, the magnetic material layer having a C-axis tilted at about a first angle with respect to an axis perpendicular to the substrate surface and having a magnetic easy axis oriented at a second angle with respect to the axis perpendicular to the substrate surface[[.]]; and
a soft magnetic underlayer between the substrate and the seedlayer structure.
2. (Original) The magnetic storage medium of claim 1 wherein the seedlayer structure includes crystallographic texture tilted with respect to an axis perpendicular to the substrate surface and acts as a template for epitaxial growth.
3. (Original) The magnetic storage medium of claim 1 wherein the first angle is in the range of about 25° to about 55°.
4. (Original) The magnetic storage medium of claim 1 wherein the second angle is between about 30° to about 60°.
5. (Original) The magnetic storage medium of claim 1 wherein the magnetic material layer is formed of a material with uniaxial anisotropy.

6. (Original) The magnetic storage medium of claim 1 wherein the magnetic material layer is formed of a material with coercivity greater than 2000 Oe.

7. (Original) The magnetic storage medium of claim 6 wherein the magnetic material layer is formed of a Co alloy.

8. (Currently Amended) ~~The magnetic storage medium of claim 1 wherein the seedlayer structure comprises:~~ A magnetic storage medium comprising:

a substrate having a substrate surface;

a seedlayer structure overlying the substrate surface; and

a magnetic material layer on the seedlayer structure, the magnetic material layer having a

C-axis tilted at about a first angle with respect to an axis perpendicular to the

substrate surface and having a magnetic easy axis oriented at a second angle with

respect to the axis perpendicular to the substrate surface;

wherein the seedlayer structure comprises:

a first seedlayer that defines a tilted grain structure; and

a second seedlayer overlying the first seedlayer that creates a preferred crystallographic texture and provides a template for epitaxial growth of the magnetic material layer.

9. (Original) The magnetic storage medium of claim 8 wherein the first seedlayer is formed from Ta.

10. (Original) The magnetic storage medium of claim 8 wherein the second seedlayer is formed from Ru.

11. (Original) The magnetic storage medium of claim 8 wherein the magnetic material layer is formed from a Co alloy.

12. Canceled.

13. (Original) The magnetic storage medium of claim 1 wherein the magnetic material layer has a columnar structure oriented generally perpendicular to the substrate surface.

14. (Original) The magnetic storage medium of claim 1 wherein the magnetic material layer has a columnar structure oriented generally tilted relative to the substrate surface.

15. (Original) The magnetic storage medium of claim 1 wherein the C-axis of the magnetic material layer is organized with azimuthal symmetry.

16. (Currently Amended) ~~The magnetic storage medium of claim 1~~ A magnetic storage medium comprising:

a substrate having a substrate surface;

a seedlayer structure overlying the substrate surface; and

a magnetic material layer on the seedlayer structure, the magnetic material layer having a

C-axis tilted at about a first angle with respect to an axis perpendicular to the

substrate surface and having a magnetic easy axis oriented at a second angle with

respect to the axis perpendicular to the substrate surface, wherein the C-axis of

the magnetic material layer is organized into a radial pattern.

17. (Currently Amended) ~~The magnetic storage medium of claim~~ A magnetic storage medium comprising:

a substrate having a substrate surface;

a seedlayer structure overlying the substrate surface; and

a magnetic material layer on the seedlayer structure, the magnetic material layer having a

C-axis tilted at about a first angle with respect to an axis perpendicular to the substrate surface and having a magnetic easy axis oriented at a second angle with respect to the axis perpendicular to the substrate surface, wherein the C-axis of the magnetic material layer is organized into a circumferential pattern.

18. (Currently Amended) A rigid thin film magnetic medium for use in a data storage device having a surface normal, the thin film magnetic storage medium comprising:

a substrate; [[and]]

a magnetic material layer; ~~the magnetic material layer comprising:~~

~~a C-axis; and~~

~~a uniaxial magnetic easy axis tilted with respect to surface normal.~~

a seedlayer structure underlying the magnetic material layer; and

a soft magnetic underlayer between the substrate and the seedlayer structure;

wherein the magnetic material layer comprises:

a C-axis; and

a uniaxial magnetic easy axis tilted with respect to surface normal.

19. (Currently Amended) ~~The rigid thin film magnetic medium of claim 18~~ A rigid thin film magnetic medium for use in a data storage device having a surface normal, the thin film magnetic storage medium comprising:

a substrate; and

a magnetic material layer, wherein the magnetic material layer has a perpendicular grain

structure, the magnetic material layer comprising:

a C-axis; and

a uniaxial magnetic easy axis tilted with respect to surface normal.

20. (Original) The rigid thin film magnetic medium of claim 18 wherein the magnetic material layer has a tilted grain structure.

21. (Original) The rigid thin film magnetic medium of claim 18 wherein the magnetic easy axis is organized with azimuthal symmetry.

22. (Currently Amended) ~~The magnetic storage medium of claim 18~~ A rigid thin film magnetic medium for use in a data storage device having a surface normal, the thin film magnetic storage medium comprising:

a substrate; and

a magnetic material layer, the magnetic material layer comprising:

a C-axis; and

a uniaxial magnetic easy axis tilted with respect to surface normal, wherein the magnetic easy axis is organized with a radial pattern.

23. (Currently Amended) ~~The magnetic storage medium of claim 18~~ A rigid thin film magnetic medium for use in a data storage device having a surface normal, the thin film magnetic storage medium comprising:

a substrate; and

a magnetic material layer, wherein the magnetic material layer is organized into a circumferential pattern, the magnetic material layer comprising:
a C-axis; and
a uniaxial magnetic easy axis tilted with respect to surface normal.

24. (Currently Amended) ~~The rigid thin film magnetic storage medium of claim 18~~ A rigid thin film magnetic medium for use in a data storage device having a surface normal, the thin film magnetic storage medium comprising:

a substrate; and
a magnetic material layer, the magnetic material layer comprising:
a C-axis, wherein the C-axis is tilted between about 25° and about 55° and the magnetic easy axis is tilted between about 30° and about 60° with respect to surface normal; and
a uniaxial magnetic easy axis tilted with respect to surface normal.

25. Canceled.

26. (Currently Amended) ~~The rigid thin film magnetic storage medium of claim [[25]] 18~~ wherein the magnetic material layer is grown with epitaxy on the seedlayer structure.

27. (Currently Amended) ~~The rigid thin film magnetic storage medium of claim 25~~ A rigid thin film magnetic medium for use in a data storage device having a surface normal, the thin film magnetic storage medium comprising:

a substrate;

a magnetic material layer; and

a seedlayer structure underlying the magnetic material layer, wherein the seedlayer

structure ~~further comprises~~ comprising:

a first seedlayer overlying the substrate that defines a tilted columnar structure; and

a second seedlayer overlying the first seedlayer that defines a tilted crystalline

structure and provides a template for epitaxial growth of the magnetic

material layer;

wherein the magnetic material layer comprises:

a C-axis; and

a uniaxial magnetic easy axis tilted with respect to surface normal.

28. (Original) The rigid thin film magnetic storage medium of claim 27 wherein the first seedlayer is Ta.

29. (Original) The magnetic storage medium of claim 27 wherein the second seedlayer is Ru.

30. (Original) The magnetic storage medium of claim 27 wherein the magnetic thin film is CoPtCr.

31. (Original) The magnetic storage medium of claim 27 and further comprising a soft magnetic underlayer between the substrate and the seedlayer structure.

32 - 40. Canceled.

41. (New) A magnetic storage medium comprising:

a substrate having a substrate surface;

a seedlayer structure overlying the substrate surface, wherein the seedlayer structure includes crystallographic texture tilted with respect to an axis perpendicular to the substrate surface and acts as a template for epitaxial growth; and
a magnetic material layer on the seedlayer structure, the magnetic material layer having a C-axis tilted at about a first angle with respect to an axis perpendicular to the substrate surface and having a magnetic easy axis oriented at a second angle with respect to the axis perpendicular to the substrate surface, wherein the magnetic material layer has a columnar structure oriented generally perpendicular to the substrate surface.